

TOMOCERUS (s.s.) SPINULUS
(COLLEMBOLA: ENTOMOBRYIDAE),
A NEW SPECIES OF CHINESE SPRINGTAIL¹

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ABSTRACT: A new Chinese species, *Tomocerus spinulus*, from Anhui Province China is described here. It is closest to the Pakistan species *T. asoka* Yosii, 1965 and the Japanese species *T. viridis* Yosii, 1967.

Nearly 50 species have been described in the genus *Tomocerus* s.l.; however, only 12 species were described or reported from China: *Tomocerus (Tomocerina) minutus* Tullberg 1876 from Shanxi and 11 species in the genus *Tomocerus* (s.s.); 4 from Tibet (*monticolus*, *obscurus*, *parvus*, and *zayensis* Huang and Yin 1981), 2 from Yunnan (*varius* Folsom 1899 and *folsomi* Denis 1929), *caputiviolaceus* Lee 1975, *cuspidatus* Börner 1909 from Taiwan, *kinoshitai* Yosii 1954 from Hunan, *ocreatus* Denis 1948 from Zhejiang, and *sibiricus* Reuter 1891 from Hebei. A species of the subgenus: *Tomocerus* (s.s.) *spinulus*, is described here.

***Tomocerus* (s.s.) *spinulus*, NEW SPECIES**

Color: background pale yellow with purplish blue pigment. Head with pale, scattered pigment on anterior margin between antennae. Eye patches dark. Lateral sides of Ant. I & II pale purplish blue; Ant. III gradually darker from base to apex. Ant. IV totally dark. Pattern as shown in Fig. 1. Distal half of tibiotarsus with pale, scattered pigment.

Head: Eyes 6+6, A & B larger, others subequal. Antennae up to 1.3 mm long; ratio of antenna/cephalic diagonal: 2.9/1 to 3.2/1; average segment ratios: 1-4 = 1/1.2-1.6/6.67-7.67/1-1.4. Head capsule with 2,4 anterior setae and about 40 small setae in a transverse row at posterior margin (Fig. 2). Labral setae 4,5,5,4 with 4 marginal recurving spinules (Fig. 3).

Body: Thorax with dorsal chaetotaxy and bothriotracha as in Fig. 4. Unguis rather slender; a pair of well developed pseudonychia, about 0.25-0.35 as long as inner edge of unguis; inner teeth 5-6 on all 3 pairs of legs. Unguiculus lanceolate with 1 inner tooth. Tenent hair well developed and spatulate, about as long as inner edge of unguis (Fig. 5). Tibiotarsus with numerous pointed smooth setae in different sizes, and legs I-III respectively with 3-4, 4-6, 6-8 apically tapered spine-like setae on ventral side (Fig. 6). Trochanteral organ reduced with 1/1 smooth setae (Fig. 7).

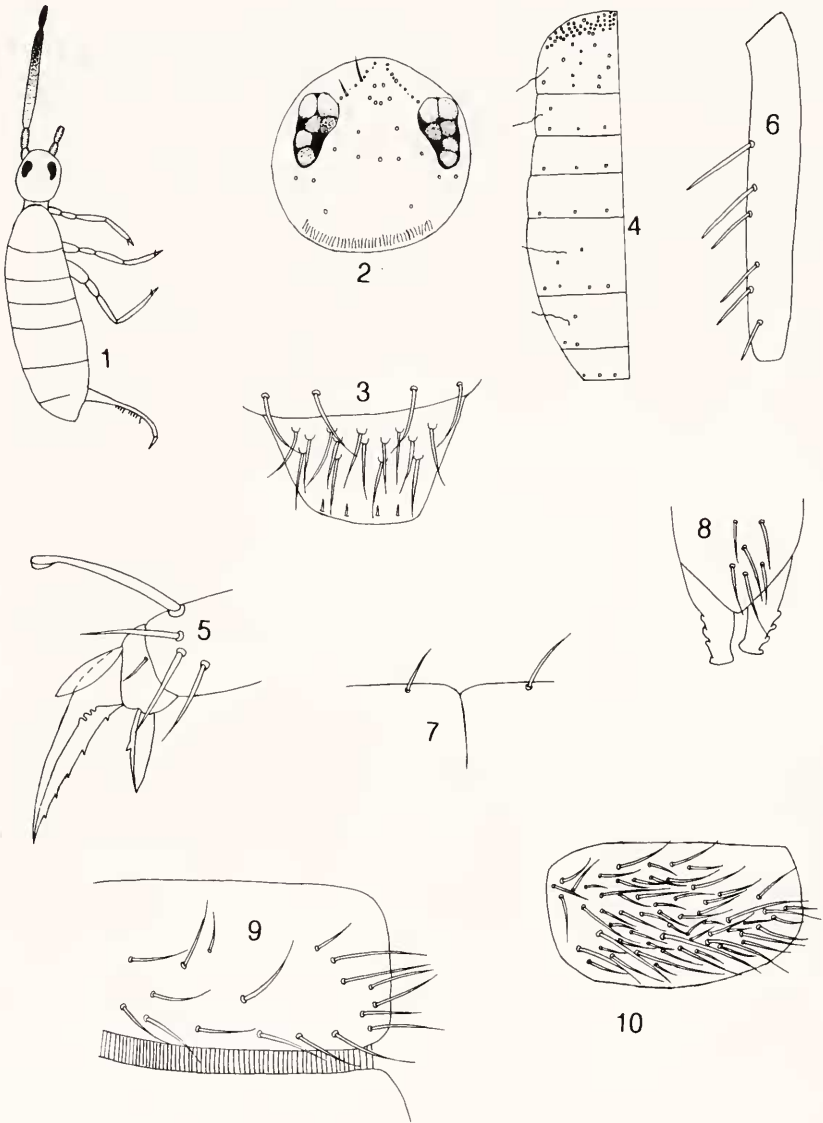
Abdominal segments 1-5 with dorsal chaetotaxy and bothriotracha as in Fig. 4. Tenaculum unscaled, corpus with 4-7(9)* smooth setae (Fig. 8). Ventral tube scaled, anteriorly with 18 smooth

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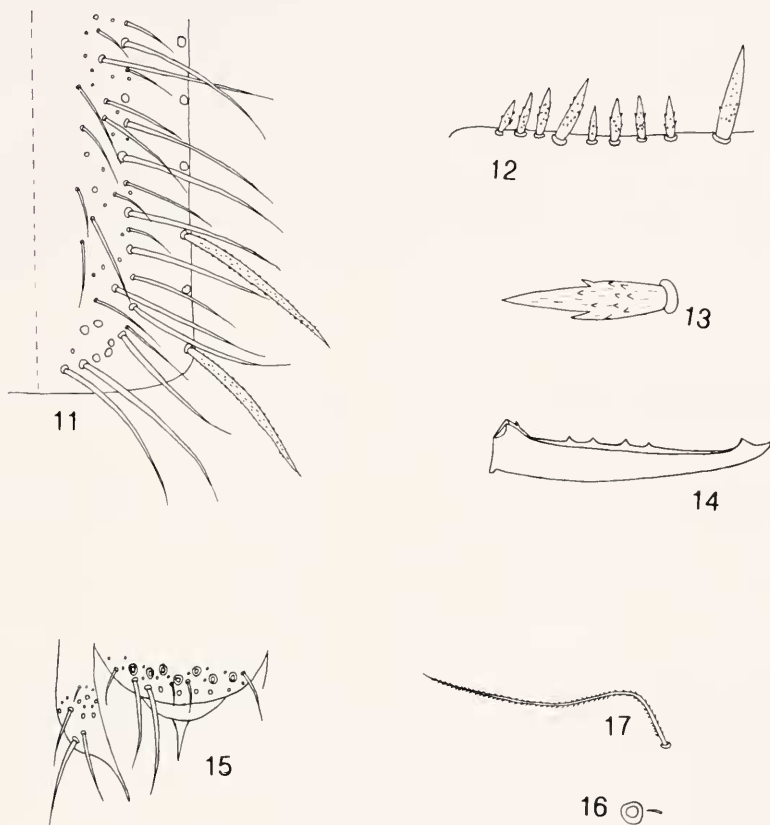
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* Numbers in parentheses represent unusual conditions.



Tomocerus spinulus. All figures of type specimens. 1. Habitus; 2. Head, 3. Labrum, 4. Chaetotaxy of body, 5. Hind claw, 6. Hind tibiotsarsus, 7. Trochanteral organ, 8. Tenaculum, 9. Anterior face of ventral tube, 10. Lateral flap of ventral tube.



Tomocerus spinulus. All figures of type specimens. 11. Distal part of manubrium (dorsal view), 12. Dental spines, 13. Single dental spine, 14. Mucro, 15. Upper anal valve of Abd. VI, 16. Microsetae at base of macrochaeta, 17. Bothriothrix.

setae (holotype) on each side (Fig. 9), posteriorly with numerous smooth setae in different sizes; lateral flap with about 60 smooth setae in different sizes (Fig. 10). Ratios of manubrium/dens/mucro = 2.3-3.0/3.3-4.0/1.0. Manubrium with a longitudinal band of lateral setae on each side and 2 longitudinal bands of setae on dorsal side; lateral setae large, weakly ciliated, gradually tapering but more strongly tapering and pointed distally; each dorsal band of setae consists of numerous setae in different sizes, those in outer row and at distal part very large; all setae very weakly ciliate to striate and pointed; no blunt "principal setae" present; scales present between longitudinal bands of setae (Fig. 11). Dental spines dark chestnut brown, formula 4(3)/4(3)-5,I, each with many tiny teeth (spinules) (Fig. 12 & 13). Dentes without inner differentiated swollen scales or outer spine-like setae. Mucro elongate, with numerous ciliate setae; outer dorsal lamella bearing 3-6 intermediate smaller teeth; outer basal tooth with a corner toothlet; apical and antepical teeth subequal (Fig. 14). Dorsal anal valve of Abd. VI with 7 large setae arranged in an irregular transverse row (Fig. 15). Body scales brownish, hyaline and heavily striate. Each body macrochaeta surrounded by 0(1-2) setulae (Fig. 16). Bothriotricha not surrounded by setulae (Fig. 17).

Size: Maximum body length 2.7 mm.

Etymology: The name of this species is derived from the Latin *spinula* = spines. It refers to the numerous spinules on dental spines.

Type materials. Holotype: male, China: Anhui Province, Yellow Mt., VII-16-1990, collection numbers 8220 & 8221. Jian Xiu Chen coll. Deposited in the Department of Biology, Nanjing University.

Paratypes: 10 females & 4 males, same data as Holotype.

DIAGNOSIS

This species bears some similarity to the widespread *T. ocreatus* but can easily be distinguished by the much finer denticulations on the dental spines, the smaller number of tenaculum setae and the unguis shape. It also resembles the Korean species *jesonicus* Yosii 1967 and *spinistriatus* Lee 1975 as well as the Tibetan species *zayuensis* Huang and Li 1981 but may be readily separated as shown below:

Character	<i>spinulus</i>	<i>jesonicus</i>	<i>spinistriatus</i>	<i>zayuensis</i>
Dental spines	4(3)/4(3)-5,I	5-6/5-6,I,1,I	5-6,I/6-7,I	3,3/3-4,II
Tenaculum setae	4-7 (9)	15	1	?
Unguiculus tooth	+	-	+	-

*Tomocerus spinulus** is much more similar to the Pakistan species *T. asoka* Yosii & Ashraf 1965 & Japanese species *T. viridis* Yosii 1967. It shares features such as the structure of claw and the number of dental spines; however, it differs from them in the body color and the features listed in the following table.

SPECIES

Character	<i>spinulus</i>	<i>asoka</i>	<i>viridis</i>
Spinules on dental spines	tiny but numerous	absent	absent except on distalmost spine
Thick spine-like setae on tibiotarsi	3-4, 4-6, 6-8	?	5, 5, 5
Tenacular setae	4 - 7 (9)	15	2
Maximum body length (in mm.)	2.7	5.0	2.0

*Found in leaf litter in a deciduous forest.

ACKNOWLEDGMENTS

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